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A Survey of Drug Route Transitions among Non-injecting and Injecting Heroin Users in South Eastern Europe

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Note: This report should not be circulated without the permission of the authors.

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In 2004, Population Services International (PSI) initiated a research and training program in Bulgaria, Macedonia, Croatia, and Bosnia-Herzegovina (BiH) to develop a better understanding of Route Transition Interventions (RTIs) and to explore the feasibility of RTIs in the region. This report details the methodology and results of a survey of injecting and non-injecting heroin users about the transition into heroin use and injecting, and factors influencing the cessation of injecting.

Route Transition Interventions

A route transition is a temporary or permanent transition in the way that a drug is ingested. RTIs developed thus far have aimed to either prevent injecting drug use or divert people away from injecting. The viability of delivering a number of the different types of RTIs was investigated in the survey. For example the 'Break the Cycle' intervention aims to reduce the number of drug users starting to inject by enhancing current injectors' reluctance to initiate others into injecting, and reducing the likelihood that injectors will model injecting to non-injectors. Consequently, data was collected in the survey on these two issues.

Method

A cross sectional survey was delivered by workers from 12 NGOs in eight cities/districts across the four target countries. Structured interviews were conducted by trained workers in diverse treatment and community settings. Three sub-types of heroin users were targeted: i) Non-injectors, ii) Current injectors, and iii) Ex-injectors.

Findings

614 people were recruited to the survey and data from 596 cases was available for analysis from Bulgaria (221), Macedonia (127), Croatia (198), and BiH (50). Of the 596 cases, 419 were current injectors, 135 ex-injectors, and 42 non-injectors. One fifth of the injectors recruited had been injecting for less than three years.

The sample recruited was predominately male, aged between 16 – 54 years (mean age 27.5 years), with most being unemployed and belonging to the main ethnic group of the country where recruited.

After heroin and methadone, cocaine powder was the drug most commonly injected ever. Recent methadone injecting was reported by approximately two fifths of current injectors in Macedonia and Croatia. Crack cocaine use was not reported often and injecting of crack cocaine is practically non-existent. Poly-drug use was common in all countries except BiH.

All participants reported lifetime use of heroin, with 89% reporting heroin use in the last 30 days and 92% of the current injectors reporting injecting heroin in the same period. The median age of initiation into heroin use was 18 years, and the median age of first injection was 19 years.

First use of heroin was typically by sniffing/snorting or smoking/chasing; the first drug injected was usually heroin (92%). Only 22% of the injector participants began heroin use by injecting. Most injectors were initiated by someone else (86%) usually a friend, acquaintance, or partner. Three fifths of the injector participants who had previously been asked to initiate someone reported they had initiated someone into injecting.

The injector participants reported considerable levels of injection-related harm including high rates of overdose, physical harm (e.g. vein damage), HCV infection, problems with family and friends, and increased dependency.

Most injector participants had been in contact with a needle exchange (NEX) service in Bulgaria, Macedonia and Croatia, but a substantial minority of current injector participants in each those countries had passed (35%, 16%, and 18% respectively) or received (35%, 20%, and 14% respectively) a used needle or syringe in the previous 28 days. The reports from BiH participants, who do not have access to NEX services, reveal a greater prevalence of risky behavior with 63% and 65% of current injectors reporting passing on or receiving used injecting equipment respectively over the same period.

Overall 32% of the current injectors were in a MMT program, mostly in Croatia. Two fifths of the Croatian participants in an MMT program reported injecting some portion of their prescribed methadone.

Only 42% of non-injectors at the time of the interview reported they would definitely not inject in the future. Non-injectors were mainly deterred from injecting by risk of negative consequences (e.g. overdose) and attracted most frequently by injecting being less expensive or more efficient, followed closely by modelling factors.

The average time between first use of heroin and injecting the drug ranged between 240 days and 365 days across the four countries. There was even greater variation for this measure within Bulgaria and Croatia.

Both sniffing/snorting and smoking/chasing were common methods for taking drugs in all four countries, with sniffing/snorting being more common in Croatia and BiH and smoking/chasing being more common in Bulgaria and Macedonia.

Approximately three fifths of the current injectors reported the quality of heroin usually obtained to be OK or better for sniffing/snorting or smoking/chasing. There were country and local area variations in the rating of the quality of heroin and how good it was for smoking/chasing and sniffing/snorting. The most frequently cited reasons for heroin being poor for smoking/chasing or sniffing had to do with perceived ineffectiveness and inefficiency.

The most frequently cited reasons for previously attempting to stop injecting were pressure from family, and trying to give up drugs e.g. (entering treatment). Nearly a fifth of participants cited physical harm (e.g. scarring) and collapsed veins (17% and 19% respectively). The majority of participants reported a previous attempt to stop injecting, with the typical number of attempts being three or four.

An important criterion for the Break the Cycle intervention is that a value position should exist among current injectors against initiating people into injecting. Among the 365 injector participants who had been asked to initiate someone, 88% reported having refused, and between 29% and 71% of the participants from each county indicated they would not initiate someone in the future. Among those who refused to initiate someone to injecting, the most frequent reasons given were concern about the person becoming hooked, developing problems, or overdosing. In addition, 4% gave the reason that they would never do that for anyone. Together, these findings suggest a general reluctance among current injectors to initiate someone to injecting.

Injecting in front of non-injectors was reported by a minority of injector participants. However, the majority of non-injectors in the survey reported having been present when someone injected. Also, the modelling of injecting behaviour was reported as being influential in their own transition to injecting by 44% of the injector participants.

For the most part the features surrounding the transition into injecting reported by the participants were similar to what has been discovered elsewhere, and the survey findings do not negate the possibility of delivering any type of RTI in each of the four countries.

The findings emphasize the need to be selective when choosing which type of RTI to focus on, the value of local research and the need for further formative work if effective RTIs are to be designed. Key areas for further research might include:

1. Investigating further the possibility of developing strategies to reduce the number of people starting to use heroin.
2. Evaluating the viability of identifying and engaging at-risk non-injecting heroin users.
3. Gaining greater clarity about the prevalence and impact of current injectors modeling injecting to non-injecting heroin users and the salient factors inhibiting injectors from initiating others.

1. Introduction

1.1 Purpose of the study

In 2004, Population Services International (PSI), in conjunction with its larger strategy to reduce the risk of HIV infection from injecting drug use in South Eastern Europe (SEE), funded a research and training program in Bulgaria, Macedonia, Croatia, and Bosnia-Herzegovina (BiH). The objective of this program was to develop a better understanding of RTIs and to explore the feasibility of RTIs in the region. This report details the methodology and results of a survey conducted under the aegis of PSI amongst injecting and non-injecting heroin users in Bulgaria, Macedonia, Croatia, and BiH. The survey was undertaken to elucidate factors responsible in SEE for the transition to injecting heroin use, as well as those relevant to desisting from injecting. The primary objectives of the survey were to explore the viability of delivering RTIs in the above mentioned countries, and to assist in the development of effective RTIs through the acquisition and dissemination of regional and demographic information. This report was written specifically for distribution amongst agencies that participated in the program of work.

2. Background

2.1 Injecting-related risk in South Eastern Europe

Determining the level of risk for HIV/AIDS transmission from injecting drug use in SEE has been hindered by limited research on the topic. However, a rapid assessment and response study of HIV/AIDS among young people in SEE found extensive evidence of drug use, injecting and related risky behaviors such as needle and syringe sharing in Macedonia, Croatia, and BiH (Wong, 2002). Furthermore, a 2004 study on the priorities for HIV prevention in the Balkans (including Macedonia and BiH) found that while the known HIV prevalence rate in the region was low (cited as under 0.1%), contextual factors that increase the vulnerability to HIV/AIDS exist in all the countries in that region (Godinho et al, 2004).

The contextual factors for heightened vulnerability to HIV/AIDS include the following: very young populations, rapid social transition, wars, unemployment and generalized use of drugs and high-risk sexual behavior among youth. The number of cases of HIV and HCV (hepatitis C virus) was reported as increasing, indicating the significant potential in SEE of an HIV epidemic associated with injecting drug use.

2.2 Route Transition Interventions

Most of the severe types of harm associated with illicit drug use, such as blood born virus (BBV) infection and overdose, directly result from, or are exacerbated by, injecting drug use. While needle exchange services (NEX) and methadone maintenance treatment (MMT) programs have proven effective at reducing the level of harm resulting from injecting drug use, they alone cannot serve as solutions. Countries such as the UK, where these types of treatment services have been in place for a number of years, exemplify this; although programs have prompted reductions, unacceptable levels of HCV and other serious harms continue to result from injecting drug use (Hope et al. al, 2001; Best et al., 2002).

As a response to these circumstances and the generalized problems of injecting drug use, a number of different Route Transition Interventions (RTIs) have been developed. A route

transition is a temporary or permanent transition in the way a drug is ingested. RTIs developed thus far have almost exclusively been designed to prevent transition to a more harmful route of drug administration, such as injecting, or to promote a change in the route of drug administration from a more dangerous form (usually injecting) to a less dangerous route. The variety of specific RTIs developed to-date includes the following:

- Psycho-educational programs which target non-injecting at-risk heroin users. Focus is placed on the transition to injecting and associated risks to decrease the likelihood that transition to injecting will occur

- Interventions with existing injectors to reduce the likelihood that they will model injecting behaviour to non-injectors or agree to give a non-injector his or her first injection (Break the Cycle intervention)

- Promotion of heroin smoking/chasing or sniffing/snorting to current injectors through training and guidance on how to smoke/chase drugs efficiently; comparing the risks associated with injecting and those associated with smoking/chasing or sniffing/snorting

- Promotion of rectal administration of drugs as a safer alternative to injecting

In addition, more overarching interventions, specifically MMT programs and other types of substitute prescribing, can reduce the frequency of injecting. Furthermore, population information campaigns with messages that emphasize injecting as a high-risk form of taking drugs could be developed to reduce the proportion of drug users who make the transition to injecting.

For a more detailed description of the above-listed RTIs and existing research evidence on the methodology see *Preventing and Curtailing Injecting Drug Use: A Review of Opportunities for Developing and Delivering 'Route of Transition Interventions' (*Hunt et al. 1999).

3. Preparatory activities

3.1. Interviews with key informants in Croatia
In preparation for the survey, one of the authors (GS) visited Croatia and interviewed key informants to gather background data on drug use and route transitions in the region. The key informants interviewed included clinicians, drug agency staff, and users' union representatives.

3.2 Workshop on Route Transition Interventions
Two of the authors (NH & AP) ran a three-day workshop in Zagreb, Croatia in November 2004 for PSI and representatives from 12 NGOs from Bulgaria, Macedonia, Bosnia & Herzegovina and Croatia. The workshop aimed to introduce the principles and practices underpinning the various RTIs, particularly the Break the Cycle (BTC) intervention (Hunt et al., 1998), and to review existing research evidence for RTIs. Additionally, the workshop emphasized the importance of implementing RTIs that have been designed to reflect the

local environment and customized to the particular drug using patterns and drug users in any location.

3.3 Development of the Route Transitions Assessment Tool (RTAT)
Informed by the discussions with key informants in Croatia, and guided by previous research reported in scientific literature, a provisional version of the survey questionnaire, the Route Transitions Assessment Tool (RTAT), was produced in the UK. For convenience this first draft of the RTAT was piloted with drug workers and injecting drug users in the UK to confirm basic features (e.g. length of the interview). The provisional RTAT was presented to the delegates at the workshop in Zagreb for consideration and revision. A number of content and phrasing alterations were made. The draft agreed upon by the workshop participants was distributed to the 12 NGOs who delivered the survey across the region.

3.4 RTAT manual
A short manual was developed to accompany the RTAT. The manual provides guidance on how to use the RTAT, a description of basic research practices, a training protocol for interviewers and a description of the key characteristics of the planned sample of heroin users.

4. Methodology

4.1 Survey design and sampling

A cross sectional survey design was employed. Three sub-types of heroin users were targeted to ensure comprehensive data was collected:

- **Non-injectors**: people using heroin but who have never injected any drug
- **Current injectors**: people who are currently injecting heroin/methadone
- **Ex-injectors**: people who used to inject heroin/methadone and have voluntarily stopped for at least one month, but for no longer than six months

Clients of the participating agencies and other local drug users from the sub-types of heroin users were opportunistically recruited into the survey. Participants were paid the equivalent of $5 for taking part in the survey.

4.2 Participating agencies and research sites
The survey was conducted by 12 NGOs in eight cities or districts across the four countries between 10 January 2005 when recruitment started and 31 March 2005 (see table 4.1). Outreach workers and other agency staff delivered the interviews in a diverse range of settings, e.g. therapy centers, drop in centers, bars, and various street locations.

Table 4.1 Participating agencies and locations

Bulgaria		Macedonia		Croatia		BiH	
City / District	NGO	City / District	NGO	City / District	NGO	City/ District	NGO
Borgas	Dose of Love	Skopje	Doverba, HOPS	Split	Spica, Novi Zivot	Sarajevo	Ug Proi
Plovdiv	Panacea			Zagreb	Let, Red Cross, Uho, Spica		
Sofia	Initiative for Health			Rejika	Terra		

4.3 The RTAT

The RTAT is a pencil and paper questionnaire delivered face-to-face by a trained interviewer who is instructed to ask a mixture of closed and open questions across the following nine domains:

1. Personal details
2. Drug history
3. Heroin use
4. Non-injectors (supplementary questions)
5. Transition to injecting
6. Helping someone else inject
7. Problems and harms
8. Trying to stop injecting
9. Treatment services

Fourteen prompt cards were used in the delivery of the RTAT (e.g. list of possible harms associated with injecting). Prompt cards are used to facilitate the flow of the interview and reduce response bias. Survey deliverers reported that an average interview took 30 to 40 minutes to complete, the range being 20 minutes to one hour. The NGOs supervising the delivery of the survey reported few problems being encountered during survey administration.

4.4 Data validity

As is usual for cross sectional surveys of illicit drug users, no strategies were employed to confirm the validity of the self-report data. The data reported should be considered from the perspective that the information provided by participants may be biased in a number of ways, including inaccurate recall or conscious over or under reporting by participants. For example it is possible that some of the drug users interviewed were reluctant to report sharing injecting equipment or to report initiating someone into injecting leading to underreporting of these behaviours.

4.5 Data preparation and management
The data was entered (with translation of responses) in Romania and analyzed in the UK. There was a substantial amount of 'missing' and conflicting data in the data set. However, it was not possible at the analysis stage, without reference to the original questionnaires and local quality control protocols, to determine the exact reasons why this occurred. While NGO representatives were trained on the methodology and on the survey, it was a tiered training where they in turn had to train their data collectors. Because of resource constraints, neither the principal researcher nor PSI was able to be present at each site to ensure consistency in the application of the survey instrument. In the future, these constraints should be considered more closely when implementing a similar survey across multiple countries and languages. Nevertheless, the data collected does yield useful information in better understanding the feasibility of RTIs in the region.

Given the relatively small sample recruited and the primary objective of providing the participating NGOs with data to inform service development, where possible, cases with missing data were retained for analysis. Consequently the number of cases presented for a particular sub-group (e.g. current injectors) varies as the amount of missing data varies from variable to variable. For example, 419 current injector cases were retained for analysis, but data from only 406 cases was available on which drugs had been injected recently and only 411 cases had data on whether non-injectors were present when injecting occurred (see tables 6.13 and 6.14). Removing all cases where data were missing to create a uniform data set would have substantially reduced the number of cases and significantly lessened the potential for reporting on key issues.

Further, while 60 non-injectors were recruited to the survey, in 24 cases no recent heroin use was reported. However, it could be confirmed that six of these 24 respondents had used heroin in the last year. To retain as large a sample of non-injectors as possible these six cases were retained and analysis was conducted with 42 non-injector cases.

For most of the findings, both overall regional and country-level figures are presented. However, for three key variables – 1) time lapse between first use of heroin and first injecting the drug; 2) rating of the quality of heroin obtained in the previous month and; 3) drug used at initiation into injecting – more in-depth analysis of the injector data was undertaken for the different city/district areas within Bulgaria and Croatia. At the time of the survey these were the only city/districts represented in this study where additional IDU services were offered outside of the capital, and, thus, warranted additional analysis.

The data was analyzed descriptively, primarily showing frequency counts and median averages. Some of the country and city level results are based on very few cases. Whenever feasible and practical, both the percentage and number of participants for each result is indicated to provide clarification. However, where a particular result is based on few cases caution should be taken when considering how representative the result is for the larger population.

5. Sample

5.1 Sample by injecting status

In total, 614 people were recruited to the study, and 596 cases were retained for analysis and reporting. Just over two thirds (70%, 419/596) of those participants who were retained for analysis were current injectors. Of the remaining participants 23% (135/596) were ex-injectors and 7% (42/596) were non-injectors (see table 5.1).

Table 5.1: Injecting status

Injecting Status	Bulgaria (221)		Macedonia (127)		Croatia (198)		BiH (50)		Total (596)	
	n	%	n	%	n	%	n	%	n	%
Current injector	180	81	88	69	127	64	24	48	419	70
Ex-injector	27	12	33	26	57	29	18	36	135	23
Non-injector	14	6	6	5	14	7	8	16	42	7

Overall, 109 (20% of 554) of the injectors had first injected less than three years previously: Bulgaria (32%, 67/207), Macedonia (20%, 24/121)) Croatia (8%, 15/184) BiH (7%, 3/42).

5.2 Demographics

In total 82% (484/594) of the participants were male: Bulgaria (85%, 188/221), Macedonia (82%, 103/126), Croatia (75%, 148/197), BiH (90%, 45/50). The age of participants ranged from 16 years to 54 years, with average age being 27.5 years. The sample recruited in BiH was distinctive, with the maximum of the participants' age range being 10 years shorter than the other country samples (see table 5.2).

Table 5.2 Age

	Bulgaria (221)	Macedonia (123)	Croatia (197)	BiH (48)	Total (589)
Age (mean years)	24.4	28.3	29.6	28.8	27.3
Age (range years)	17- 51	18 - 50	17 - 54	22 - 40	17 - 54

Participants were shown a prompt card and asked to identify their ethnic group from a list of eight ethnic groups, with the option of describing their ethnic group if not listed. The 16 cases where the participant described their ethnic group were grouped and post coded as 'other' for analysis. Nearly two thirds of the sample identified themselves to be of either Croatian or Bulgarian ethnic origin, 31.7% and 27.5% respectively. The third most common ethnic group was Roma, with these participants being located in either Bulgaria or Macedonia (see table 5.3).

Table 5.3 Ethnic group

Ethnic group	Bulgaria (220)		Macedonia (126)		Croatia (197)		BiH (50)		Total (593)	
	n	%	n	%	n	%	n	%	n	%
Macedonian	1	.5	50	40	1	.5	0	0	52	9
Albanian	1	.5	37	30	0	0	0	0	38	6
Roma	37	17	27	21	0	0	0	0	64	11
Serb	0	0	4	3	0	0	9	18	13	2
Bosnia	0	0	1	.8	0	0	37	74	38	6
Bulgarian	163	74	0	0	0	0	0	0	163	28
Turkish	17	8	4	3	0	0	0	0	21	4
Croatian	0	0	1	.8	183	93	4	8	188	32
Other	1	.5	2	2	13	7	0	0	16	3

Between half and three quarters of each country sample was unemployed when interviewed; 63% (368/584) overall (see table 5.4). Approximately 1 in 11 of the participants were students (9%, 52/584), and just over one fifth were in some form of employment (23%, 135/584).

Table 5.4 Occupation

Occupation	Bulgaria (216)		Macedonia (123)		Croatia (195)		BiH (50)		Total (584)	
	n	%	n	%	n	%	n	%	n	%
Full time employment	34	16	13	11	44	23	5	10	96	16
Part time employment	21	10	3	3	7	4	8	16	39	7
Student	27	13	8	7	12	6	5	10	52	9
Unemployed	128	59	94	76	114	59	32	64	368	63
Other	6	3	5	4	18	9	0	0	29	5

6. Injectors

6.1 Drug use history
6.1.1 Lifetime use of drugs
All injector participants were asked to indicate which of seven drugs pre-listed in the questionnaire they had used previously: amphetamine, powder cocaine, crack cocaine, heroin, methadone, MDMA, benzodiazepines.

All injectors indicated lifetime use of heroin, and most had used methadone (68%, 353/523). With the exception of crack cocaine (14%, 77/523), lifetime use of each of the other drugs was reported by a substantial proportion of the injector participants in each of the four countries. Benzodiazepine use was the most common non-opiate type of drug use indicated by Bulgarian, Macedonian, and Croatian participants; MDMA was the most common non-opiate in the BiH sub-group. Nearly half of the injectors (48%) reported lifetime use of a drug other than those

listed. The most commonly reported 'other' drugs were cannabis or hashish (31%), hallucinogens (6%) and morphine (4%).

Table 6.1 Lifetime use of drugs

	Bulgaria (207)		Macedonia (121)		Croatia (152)		BiH (42)		Total (522)	
	n	%	n	%	n	%	N	%	n	%
Amphetamine	163	79	36	30	119	78	16	38	334	64
Powder cocaine	140	68	61	50	130	86	14	33	345	66
Crack cocaine	38	18	23	19	14	9	2	5	77	15
Heroin	207	100	121	100	153	100	42	100	554	100
Methadone	88	43	96	80	145	95	24	57	353	68
MDMA	103	50	57	47	125	82	29	69	314	60
Benzodiazepines	145	70	95	79	119	78	15	36	374	72
Other drugs	72	35	73	60	75	49	29	70	249	48

Some distinct patterns of drug use were apparent across the four countries. Crack cocaine use was more common in Bulgaria and Macedonia than Croatia and BiH, and the prevalence of amphetamine use in Bulgaria and Croatia was over twice that reported in the other two countries.

6.1.2 Lifetime use of ingestion routes other than injecting
Most injector participants in all four countries had previously taken a drug orally, by sniffing/snorting and by smoking/chasing (see table 6.2). Only two injector participants (1%) reported drug ingestion by the rectal route. Smoking/chasing was most common in Bulgaria and Macedonia and participants more commonly reported sniffing/snorting in Croatia and BiH.

Table 6.2 Lifetime use of non-injecting ingestion routes

	Bulgaria (207)		Macedonia (121)		Croatia (153)		BiH (42)		Total (523)	
	n	%	n	%	n	%	n	%	n	%
Smoke/chase	177	86	108	89	98	64	24	57	407	78
Sniff/snort	178	86	76	63	147	96	41	98	442	85
By mouth	177	86	105	87	148	97	37	88	467	89
Rectal	0	0	1	1	1	1	0	0	2	1

6.1.3 Drug use in the previous month
Among the current injectors recruited in Bulgaria, Macedonia and Croatia, current use of all the listed drugs, excluding crack cocaine, was commonly reported whereas in BiH only heroin or methadone use was reported. Overall, the prevalence of heroin and methadone use among current injectors in the previous 30 days was 95% (387/406) and 38% (155/406), respectively.

Table 6.3 Drug use in the previous 30 days

	Bulgaria (180)		Macedonia (88)		Croatia (114)		BiH (24)		Total (406)	
	n	%	n	%	n	%	n	%	n	%
Amphetamine	62	34	2	2	10	9	0	0	74	18
Powder cocaine	18	10	9	10	11	10	0	0	38	9
Crack cocaine	3	2	1	1	0	0	0	0	4	1
Heroin	177	98	81	92	105	92	24	100	387	95
Methadone	25	14	42	48	86	76	2	8	155	38
MDMA	13	7	10	11	9	8	0	0	32	8
Benzodiazepines	55	31	53	60	63	50	0	0	171	42
Other	24	13	30	34	28	25	2	8	84	21

Excluding the participants recruited in Croatia, on median average the current injectors reported using heroin over 20 of the previous 30 days: Bulgaria 23.4 days, Macedonia 22.4 days, BiH 24 days. The mean frequency of use reported in Croatia was considerably lower at 13.9 days. This difference may be explained in part by the relatively high frequency of methadone and benzodiazepine use in that country. The use of benzodiazepines in Croatia and Bulgaria is reported as being much more frequent than in Macedonia, with no benzodiazepine use reported in BiH.

Table 6.4 Mean days using listed drugs

	Bulgaria	Macedonia	Croatia	BiH
Amphetamine	3.7	.75	.34	0
Powder cocaine	1	1.1	1.7	0
Crack cocaine	1	1	0	0
Heroin	23.4	22.4	13.9	24
Methadone	10.2	15.2	20.7	11.7
MDMA	2.4	2.8	.46	0
Benzodiazepines	7.2	14.8	15.4	0

6.2 Heroin Use
6.2.1 Age first used heroin
The overall median age of first heroin use among the injector participants was 18 years. The median age of first heroin use was three years higher in BiH compared with the other countries: Bulgaria (18 years), Macedonia (18 years), Croatia (18 years), and BiH (21 years). The figures for methadone use are as follows: all four countries (22 years), Bulgaria (22 years), Macedonia (20 years), Croatia (22 years), and BiH (27.5 years). Again the BiH data is distinctive with the median age of first use of methadone at least 6.5 years higher than the other cases.

6.2.2 Route used at inception of heroin use
In total, 22% (118/549) of the injector participants reported that their first use of heroin was by injection. Inception into heroin use by injecting was more common in Bulgaria and

Croatia: Bulgaria 24% (50/205), Macedonia 13% (15/119), Croatia 27% (49/184), BiH (10%, 4/41). First use of heroin by other routes was almost always by either chasing/smoking (36%, 196/549) or by sniffing/snorting (42%, 230/549). Looking more closely at smoking/chasing and sniffing/snorting we see the following data by country; smoking/chasing was the most common first route in Bulgaria (48%, 99/205) and Macedonia (72%, 86/119), and snorting/sniffing was the most common route reported in Croatia (67%, 124/184) and BiH (85%, 35/41).

Table 6.5 First route of heroin by all injectors

	Bulgaria (205)		Macedonia (119)		Croatia (184)		BiH (41)		Total (549)	
	n	%	n	%	n	%	n	%	n	%
Smoke/chase	99	48	86	72	9	5	2	5	196	36
By mouth	3	2	0	0	2	1	0	0	5	1
Snort/sniff	53	26	18	15	124	67	35	85	230	42
Inject	50	24	15	13	49	27	4	10	118	22

6.2.3 Type of heroin used most frequently in the previous month
The current injectors were asked which type of heroin they used most frequently. In Bulgaria (91%, 159/175), Macedonia (55%, 47/85), and Croatia (84%, 102/122) among those current injector participants who indicated using a single type of heroin, brown heroin was the principal type of heroin consumed, with heroin rocks being the principal type in BiH (33% 8/24). In Bulgaria and Croatia, non-brown types of heroin were used by relatively few participants compared with Macedonia and BiH. In the latter two countries substantial proportions of the current injectors reported using non-brown types of heroin 'most frequently' (see table 6.6). Overall, 17 (4.2%, 406) current injectors were unable to indicate using a particular type of heroin more frequently than any other and therefore reported using multiple types of heroin.

Table 6.6 Type of heroin consumed most frequently in the last month

	Bulgaria (175)		Macedonia (85)		Croatia (122)		BiH (24)		Total (406)	
	n	%	n	%	n	%	n	%	n	%
Brown	159	91	47	55	102	84	6	25	314	77
White	4	2	12	14	2	2	1	4	19	5
Heroin mixture	9	5	10	12	11	9	2	8	32	8
Heroin rocks	0	0	9	11	4	3	8	33	21	5
Multiple types	2	1	5	6	3	3	7	29	17	4
Other	1	1	2	2	0	0	0	0	3	1

6.2.4 Quality of heroin in the previous month
Two fifths (40%,164/407) of the current injectors chose to report the quality of the heroin they had obtained in the previous 30 days as being OK. The remainder were slightly more likely to report the quality as good or very good (33%, 133/407) rather than poor or very poor (27%,110/407). At a country level participants in Macedonia (13%, 11/84) and BiH

(4%, 1/24) were less likely to report the heroin they had obtained as poor or very poor than the Bulgarian (37%, 64/176) or Croatian (28%, 34/123) participants. It is likely that some of this variation is associated with white heroin and heroin rocks being more common in Macedonia and BiH as this type of heroin is generally more pure.

Table 6.7 Quality of heroin in last month

Injecting Status	Bulgaria (176)		Macedonia (84)		Croatia (123)		BiH (24)		Total (407)	
	n	%	n	%	n	%	n	%	n	%
Very good	8	5	13	16	10	8	0	0	31	8
Good	37	21	28	33	33	27	4	17	102	25
OK	67	38	32	38	46	37	19	79	164	40
Poor	49	28	11	13	29	24	1	4	90	22
Very poor	15	9	0	0	5	4	0	0	20	5

The quality of heroin was analyzed at the area level within Bulgaria and Croatia. In Bulgaria the proportion of participants from each area who rated their heroin poor or worse in the past month is as follows: Borgas (41%, 22/54), Plovdiv (30%, 15/51), Sofia (38%, 27/71). In Croatia participants from Split were less likely than participants from the other two areas to rate their heroin as poor or worse: Rjika (33%, 7/21), Zagreb (30%, 15/50), Split (23%, 12/52).

6.2.5 Quality of heroin in the previous month for sniffing/snorting and smoking/chasing
The current injector participants were asked to rate how good they thought sniffing/snorting and smoking/chasing would be with the heroin they usually obtain; participants were asked to respond to this question even if they had never taken heroin by either route. Against expectations 59% (222/379) of current injectors rated their heroin as OK, Good or Very Good for sniffing/snorting and 60% (232/385) of the current injectors reported the same in relation to smoking/chasing. This result is important because it indicates that overall a substantial proportion of injectors might respond positively to an intervention promoting the transition from injecting to these less risky ingestion routes.

Table 6.8 Quality of heroin for sniffing/snorting

Injecting Status	Bulgaria (169)		Macedonia (63)		Croatia (124)		BiH (23)		Total (379)	
	n	%	n	%	n	%	n	%	n	%
Very good	14	8	4	6	3	2	0	0	21	6
Good	36	21	20	32	19	15	7	30	82	22
OK	49	29	21	33	42	34	7	30	119	31
Poor	49	29	13	21	39	32	8	35	109	29
Very poor	21	12	5	8	21	17	1	4	48	13

Table 6.9 Quality of heroin for smoking/chasing

Injecting Status	Bulgaria (172)		Macedonia (83)		Croatia (112)		BiH (18)		Total (385)	
	n	%	n	%	n	%	n	%	n	%
Very good	15	9	1	1	2	2	0	0	18	5
Good	44	26	22	27	14	13	2	11	82	21
OK	46	27	35	42	44	39	7	39	132	34
Poor	43	25	23	28	35	31	7	39	108	28
Very poor	24	14	2	2	17	15	2	11	45	12

At a country level the proportion of current injectors who rated sniffing/snorting as a poor or very poor way to take the heroin was as follows: Bulgaria 41% (70/169), Macedonia 29% (18/63), Croatia 49% (60/124), BiH 39% (9/23). For smoking/chasing the correspondent results were: Bulgaria 39% (67/172), Macedonia 30% (25/83), Croatia 46% (52/112), BiH 50% (9/18).

Those participants who rated smoking/chasing or sniffing/snorting as a poor method of ingestion were asked to state why this was the case. Overall, five themes emerged when their responses were examined: i) less effect (e.g. no flash/rush or less duration/intensity of effect), ii) less efficient/wasteful, iii) poor quality of heroin, iv) harmfulness (e.g. perceived 'harm to nasal passages or lungs' or to cause vomiting), v) dislike (e.g. the problems associated with 'chasing' in the open or the taste).

Table 6.10 Reasons why sniffing/snorting poor way to take heroin*

Injecting Status	Bulgaria (67)		Macedonia (17)		Croatia (56)		BiH (8)		Total (148)	
	n	%	n	%	n	%	n	%	n	%
Less effect	43	64	6	35	39	70	4	50	92	62
Poor quality	2	3	4	24	3	5	1	13	10	7
Harmful	9	13	6	35	2	4	3	38	20	14
Less efficient	13	19	3	18	31	55	3	38	50	34
Dislike	8	12	3	18	13	23	2	25	26	18

* Some participants indicated multiple reasons therefore column totals larger than number of cases.

Table 6.11 Reasons why smoking/chasing poor way to take heroin*

Injecting Status	Bulgaria (65)		Macedonia (25)		Croatia (49)		BiH (8)		Total (147)	
	n	%	n	%	n	%	n	%	n	%
Less effect	39	60	4	16	9	18	2	25	54	37
Poor quality	31	48	1	4	8	16	0	0	40	27
Harmful	8	12	9	36	9	18	0	0	26	18
Less efficient	16	25	8	32	28	57	7	88	59	40
Dislike	6	9	4	16	10	20	3	38	23	16

* Some participants indicated multiple reasons therefore column totals larger than number of cases.

For both routes inefficiency and poor effect were by far the most commonly reported reasons (see tables 6.10 and 6.11). Poor quality of heroin was more frequently reported for chasing/smoking (27%, 40/147) than sniffing/snorting (7%, 10/148). It is noteworthy that 14% (20/148) and 18% (26/147) of the participants respectively reported a type of health harm or negative physical reaction as a reason why they considered these routes a poor way to ingest heroin.

6.3 Injecting
6.3.1 Lifetime injecting
The lifetime pattern of injecting, as might be expected, does not exactly mirror the patterning of lifetime drug use. Overall across the four countries, powder cocaine is the most commonly reported injected drug after heroin and methadone, with 34% of injector participants having a lifetime experience of injecting that drug. Over a third of the sample (39%, 206/522) reported injecting methadone, with this practice being more commonly reported in Macedonia and Croatia, thus reflecting the greater prevalence of MMT programs in those countries compared with Bulgaria and BiH (see table 6.12).

Table 6.12 Lifetime prevalence of injecting by drug

	Bulgaria (207)		Macedonia (121)		Croatia (153)		BiH (42)		Total (523)	
	n	%	n	%	n	%	n	%	n	%
Amphetamine	73	35	4	3	19	12	1	2	97	18
Powder cocaine	57	28	24	20	88	58	6	14	175	34
Crack cocaine	3	1	3	3	3	2	0	0	9	2
Heroin	207	100	120	99	153	100	42	100	522	100
Methadone*	39	19	75	62	85	55	9	21	208	39
MDMA	4	2	4	3	14	9	1	2	23	4
Benzodiazepines	31	15	64	53	12	8	1	2	108	21
Other	16	8	7	6	2	1	4	10	29	6

* One Macedonian ex-injector had only injected methadone.

6.3.2 Age of first injection
The drug taken at initiation into injecting was nearly always heroin, making age of first injection and age at first injection of heroin essentially the same across the sample of injectors. The median age for first injection of heroin across the four countries was 19 years: Bulgaria 18.5 years, Macedonia 20 years, BiH 19 years. The age range for first injection of heroin in each country was as follows: Bulgaria 12-50 years, Macedonia 13-37 years, Croatia 13-38 years, BiH 13-33 years.

6.3.3 Duration of injecting
At the time of the survey the injector participants reported duration of injecting ranged from under one year to 33 years: Bulgaria 0-14 years, Macedonia 0-29 years, Croatia 0-33 years, BiH 0-29 years. The median duration of injecting heroin in the four countries was: Bulgaria 4 years, Macedonia 6 years, Croatia 7 years, BiH 7 years. Overall 109 (20% of 554) of the

injectors had injected for less than three years: Bulgaria (32%, 67/207), Macedonia (20%, 24/121) Croatia (8%, 15/184), BiH (7%, 3/42)

6.3.4 Injecting drug use in the previous month
Among the current injectors for whom data was available 92% (373/406) had injected heroin in the previous month. Under a quarter had injected methadone (21%, 89/406) recently and almost exclusively only in Macedonia or Croatia. The relatively low prevalence of injecting drugs other than heroin and methadone compared to the prevalence of their use generally in the same period suggests that concomitant use by other ingestion routes by injectors is not uncommon. It is also noteworthy that current injecting of amphetamines was not reported outside Bulgaria where over half the current injectors who reported using that drug in the last 30 days injected it (see tables 6.3 and 6.13).

Table 6.13 Drugs injected in the previous 30 days

	Bulgaria (180)		Macedonia (88)		Croatia (114)		BiH (24)		Total (406)	
	n	%	n	%	n	%	n	%	n	%
Amphetamine	36	20	0	0	0	0	0	0	36	9
Powder cocaine	7	4	4	5	7	6	0	0	18	4
Crack cocaine	0	0	1	1	0	0	0	0	1	1
Heroin	168	93	79	90	102	90	24	100	373	92
Methadone	8	4	35	40	45	39	1	4	89	21
MDMA	0	0	1	1	0	0	1	4	2	1
Benzodiazepines	7	4	35	40	3	3	0	0	45	11
Other	12		5		2		2			

The mean frequency of injecting heroin in the previous 30 days overall was 20 days: Bulgaria 22.2 days, Macedonia 20.7 days, Croatia 12.6 days, BiH 23.8 days. For methadone the rates were: 13.9 days overall, Bulgaria 12.5 days, Macedonia 12.9 days, Croatia 11.9 days, BiH 5 days.

6.3.5 Injecting when non-injectors present
In Bulgaria, Macedonia and Croatia, nearly four fifths of all current injectors reported never injecting with non-injectors present, with less than half of the participants in BiH reporting the same (see table 6.14). Even among those participants who had been injecting heroin for less than three years, 62% (64/97) reported never injecting in front of non-injectors. Only 5% (19/411) of participants who did report injecting in front of non-injectors indicated it to be an event that happened often or always.

Table 6.14 Non-injectors present when injecting

	Bulgaria (178)		Macedonia (83)		Croatia (128)		BiH (22)		Total (411)	
	n	%	n	%	n	%	n	%	n	%
Always	3	2	0	0	0	0	0	0	3	1
Often	4	2	3	4	9	7	0	0	16	4
Sometimes	9	5	3	4	9	7	10	45	31	8
Rarely	21	12	8	10	17	13	3	14	49	12
Never	141	79	69	83	93	73	9	41	312	76

6.3.6 Sharing injecting equipment

Current injectors were asked to indicate how often in the previous month they had passed on or received a used syringe/needle for use. In Bulgaria, Macedonia and Croatia 5% or less of participants reported either behavior as happening very often and 65% or more of participants reported either behavior never happening (see tables 6.15 and 6.16). However, in BiH the sharing of syringe/needles was reported more frequently with 18% (4/22) very often passing on used injecting equipment and 17% (4/23) very often receiving used injecting equipment.

Table 6.15 Passed on a used needle/syringe to someone

	Bulgaria (179)		Macedonia (83)		Croatia (121)		BiH (22)		Total (405)	
	n	%	n	%	n	%	n	%	n	%
Very often	7	4	1	1	3	3	4	18	15	4
Sometimes	20	11	0	0	7	6	6	27	33	8
Rarely	35	20	12	15	24	20	6	27	77	19
Never	117	65	70	84	87	72	6	27	280	69

Table 6.16 received a used needle/syringe from someone

	Bulgaria (179)		Macedonia (83)		Croatia (118)		BiH (23)		Total (403)	
	n	%	n	%	n	%	n	%	n	%
Very often	6	3	1	1	3	3	4	17	14	4
Sometimes	9	5	1	1	4	3	4	18	18	5
Rarely	48	27	15	18	21	18	7	30	91	23
Never	116	65	66	80	90	76	8	35	280	70

6.4 Initiation into injecting

6.4.1 Who initiated the participants

All injectors were asked whether they or another had given themselves their first injection. Across the four countries 86% (464/542) of participants reported that someone else gave them their first injection: Bulgaria (89%, 184/207), Macedonia (85%, 101/119), Croatia (82%, 148/181), BiH (89%, 31/35). In the majority of cases the person who initiated the

participant was a friend (69%, 319/464), acquaintance (15%, 70/464), or a partner (10%, 47/464).

Table 6.17 Relationships with person who initiated participant

	Bulgaria (184)		Macedonia (101)		Croatia (148)		BiH (31)		Total (464)	
	n	%	n	%	n	%	n	%	n	%
Partner	12	7	11	11	23	16	23	74	47	10
Sibling	4	2	1	1	5	3	0	0	10	2
Friend	133	72	79	78	92	62	15	48	319	69
Acquaintance	30	16	7	7	22	15	11	36	70	15
Stranger	1	0.5	0	0	2	1	0	0	3	1
Dealer	2	1	2	2	1	1	0	0	5	1
Other	2	1	2	2	1	1	0	0	5	1

The median number of people present at the participant's first injection was two or three in each of the four countries.

6.4.2 Drug used at initiation into injecting

As noted above, the drug most commonly injected at initiation was heroin (92%, 494/541) with broadly similar proportions in each country: Bulgaria (93%, 193/207), Macedonia (95%, 111/117), Croatia (86%, 155/181), BiH (100%, 35/35) (see table 6.18). Twenty-five participants (5%) reported using a drug other than those listed in the RTAT at initiation: Ephedrine (1), Opium (3) Codeine (1), Morphine (17), Not known (3).

In general this pattern of first drug used at initiation into injecting was retained at the city/district level within Bulgaria and Croatia with one exception. In Zagreb only 71% (49/69) of participants used heroin at their first injection; for another 9% (6/69) methadone was the drug used.

Table 6.18 Drug injected at initiation

	Bulgaria (207)		Macedonia (117)		Croatia (181)		BiH (35)		Total (540)	
	n	%	n	%	n	%	n	%	n	%
Amphetamine	0	0	0	0	4	2	0	0	4	1
Powder cocaine	3	1	1	1	1	1	0	0	5	1
Crack cocaine	0	0	0	0	0	0	0	0	0	0
Heroin	193	93	111	95	155	86	35	100	494	92
Methadone	0	0	1	1	7	4	0	0	8	2
MDMA	0	0	0	0	1	1	0	0	0	0
Benzodiazepines	1	0.5	2	2	1	1	0	0	4	1
Other	10	5	2	2	13	7	0	0	25	5

6.4.3 Status of syringe/needle used for first injection
In 15% (79/515) of cases a used syringe/needle was used at first injection, with some notable between-country differences: Bulgaria (7%, 15/207), Macedonia (10%, 10/97), and Croatia (24%, 44/180), BiH (29%, 10/35). Among those participants who started injecting in the previous three years, only five (5% of 102) participants from Bulgaria reported that a clean syringe/needle was not used.

6.4.4 Time lapse between first use of heroin and injecting that drug
A key objective of the survey was to clarify how rapidly people make the transition to injecting heroin from non-injecting heroin use. Data from 471 injectors across the four countries on the time lapse between first use of heroin and injecting the drug ranged from 240 days to 365 days (see table 6.19). Interestingly, while the median time across the four target countries between first use of heroin and injecting the drug was 300 days, where another drug was taken at first injecting, the median time since first use of the drug was on average much shorter, at 150 days.

Table 6.19 Days between starting to use drug first injected and injecting

	Bulgaria	**Macedonia**	**Croatia**	**BiH**
Median days	270	365	240	270
Range of days	0-3285	0-3650	0-6935	7-2190

There was substantial within-country variation in Bulgaria and Croatia for the duration of time between first taking heroin and initiation into injecting with heroin. In Bulgaria the median time lapse ranged from 180 days in Borgas and Plovdiv to 365 days in Sofia. In Croatia the corresponding results were: Rjika (150), Zagreb (639), Split (180 days).

6.4.6 Participants' reasons for starting to inject
By far curiosity about injecting was the most frequently indicated reason for starting to inject, followed by the similar item of 'wanting to experience the rush from injecting' (see table 6.20).

Two items were included to specifically capture modelling effects: 'injecting looked enjoyable' and 'injecting sounded OK when others talked about it'. Approximately one fifth and two fifths of the injector participants respectively selected these items (see table 6.20); in aggregate 44% (241/554) selected one or both items. Approximately a third of injectors cited injecting being more economic (34%, 188/554) or more efficient (36%, 199/554); in aggregate 49.3% (270/554) selected one or both items. This latter finding reinforces the idea that economic drivers may play a significant role when considering smoking/chasing and sniffing/snorting heroin as an alternative to injecting. Whether friends injected (35%, 193/554) was an important factor for a substantial minority of the participants. Fourteen percent (78/554) of participants indicated the fact that their partner injected was influential.

Table 6.20 Reasons for starting to inject

	Bulgaria (207)		Macedonia (121)		Croatia (184)		BiH (42)		Total (554)	
	n	%	n	%	n	%	n	%	n	%
Curiosity	137	66	70	58	135	73	18	43	360	65
Experience the rush	93	45	58	48	90	49	29	69	270	49
Injecting looked enjoyable	38	18	39	32	21	11	16	38	114	21
Sounded OK when others talked about it	72	34	48	40	52	28	26	62	198	36
Partner injected	34	16	8	7	27	15	9	21	78	14
Friends injected	60	29	55	46	74	40	4	10	193	35
Pressured by friends	39	19	15	12	17	9	1	2	72	13
Pressured by partner	9	4	4	3.	5	3	2	5	20	4
Drunk/High	28	14	1	1	6	3	4	10	39	7
More economic	59	29	49	41	60	33	20	48	188	34
More efficient	53	26	46	38	75	41	25	60	199	36
Had to share	23	11	27	22	17	9	3	7	70	13
Being in prison	1	1	4	3	0	0	0	0	5	1
Heroin not good enough to smoke	18	9	6	5	9	5	1	2	34	6
Heroin got worse	25	12	8	7	12	7	3	7	48	9
Heroin available better to inject	24	12	15	12	9	5	1	2	49	9
Obtained injecting equipment	17	8	2	2	25	14	3	7	47	9
Deal with problems	17	8	5	4	15	8	0	0	37	7
Sold in syringe	9	4	1	1	5	3	2	5	17	3
Other	4	2	9	7	8	4	1	2	22	4

6.5 Initiation of others

6.5.1 Asked to initiate someone into injecting

Among the injectors recruited to the study 66% (356/543) reported that they had previously been asked to give someone their first injection, with just over half of the Bulgarian participants (57%,116/203) and approximately three quarters of the participants in the other countries indicating so: Macedonia (67%, 79/118), Croatia (65%, 133/206), BiH (78%, 28/36).

6.5.2 Refused to initiate someone into injecting

Of the participants who had been asked to initiate someone, 88% (308/352) indicated they had previously refused to initiate someone: Bulgaria 86%, (96/112), Macedonia (90%, 71/79), Croatia (87%, 115/133), and BiH (93%, 26/28).

6.5.3 Initiated someone into injecting

Correspondingly the following proportions of those participants who had been asked to initiate someone had previously given someone their first injection: all countries 59%, (210/354), Bulgaria 59% (68/116), Macedonia 36% (28/77), Croatia 69% (92/133), and BiH 82% (23/28). Most participants in each country reported initiating one or two people within the following ranges: BiH and Bulgaria 1 to 20 people, Croatia 1 to12 people, and Macedonia 1 to 5 people.

As would be expected the pattern of relationships with the last person initiated was similar to that reported by injectors for their own initiation: friends 53% (107/202), acquaintances 30% (61/202), and partners 13% (26/202).

6.5.4 Likelihood of initiating someone in the future

Current injectors were asked about the likelihood of initiating someone in the future. Over three fifths of the Bulgarian and Macedonian participants responded that they would definitely not do so, followed by two fifths of the Croatian participants, and one third of the BiH participants (see table 6.21). Conversely 1ess than 5% of participants in each country indicated that they definitely would initiate someone if asked.

Table 6.21 Likelihood of initiating someone into injecting in the future

	Bulgaria (174)		Macedonia (73)		Croatia (126)		BiH (21)		Total (394)	
	n	%	n	%	n	%	n	%	n	%
Definitely would	4	2	3	4	5	4	0	0	12	3
Probably would	11	6	6	8	18	14	2	10	37	9
Not sure	15	9	11	15	32	25	10	48	68	17
Probably would not	31	18	1	1	21	17	3	14	56	14
Definitely would not	104	60	52	71	50	40	6	29	212	54

6.5.5 Reasons for not initiating someone

Among the 308 injector participants who had previously been asked to initiate someone but refused, it is notable that very few indicated the reason why they did refuse was that they would never initiate anyone (see table 6.22). This finding could be taken as indicative of an awareness among injectors that in some circumstances it might be very difficult for them to refuse to initiate someone (e.g. being offered heroin for doing so when in withdrawal or when pressured by a friend).

In Bulgaria, "the person becoming hooked" was by far the reason most frequently indicated for not initiating someone. In the other countries the person getting hooked, developing problems, overdosing and being too young were all reported commonly as reasons why people did not initiate someone into injecting. In BiH the risk of overdose seemed to be particularly influential.

Table 6.22 Reasons for not initiating someone

	Bulgaria (96)		Macedonia (71)		Croatia (115)		BiH (26)		Total (308)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Dirty Hit	14	15	17	24	11	10	4	15	46	15
Would overdose	18	19	33	47	39	34	18	69	108	35
Get hooked	56	58	17	24	44	38	2	9	119	39
Too young	11	12	17	24	45	39	12	46	85	29
Never do that for anyone	1	1	3	4	3	3	5	19	12	4
Develop problems	12	13	35	49	50	44	7	23	90	30
Other	4	4	15	21	20	17	0	0	39	13

6.6 Harms experienced

6.6.1 Overdose

Injecting drug use is the most risk-laden method of taking drugs, and a range of negative consequences is associated with it. Injector participants were asked to report which negative consequences they had experienced. In total 29% (135/468) of the participants reported overdosing in the previous year. Proportionally BiH participants were over twice as likely as participants from the other three countries to report an overdose in the past year: Bulgaria 28% (52/188), Macedonia 24% (28/116), Croatia 31% (27/87), BiH 68% (21/31). The most commonly reported frequency of overdose was one or two overdose incidents in the past year.

6.6.2 Problems finding a vein when injecting

Overall 61% (307/505) of the injector participants reported experiencing problems finding a vein sometimes or more often when injecting. Again the BiH participants were distinctive, as they more frequently reported this problem than participants from the other countries: Bulgaria 48% (100/205), Macedonia 62% (67/108), Croatia 69% (112/162), BiH 93% (28/30).

Table 6.23 Vein problems when injecting

	Bulgaria (205)		Macedonia (108)		Croatia (162)		BiH (30)		Total (505)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Never	77	38	25	23	25	15	1	3	128	25
Rarely	28	14	16	15	25	15	1	3	70	14
Sometimes	33	16	27	25	35	22	6	20	101	20
Usually	34	17	31	29	36	22	14	47	115	23
Always	33	16	9	8	41	25	8	27	91	18

6.6.3 Different types of problems experienced

Confirming the previous result, when asked to indicate the type of problems they had experienced because of injecting, vein damage was the most frequently reported problem

(72%, 396/553), with half of the injector participants also reporting having had abscesses (50%, 277/553). After vein damage, interaction problems with family and friends was the next most frequently reported problem (61%, 338/553), and exactly half of all the injectors associated legal problems they had experienced with their injecting drug use (50%, 277/553).

Notably, increased dependency because of injecting drug use was reported by three fifths of the injector participants (58%, 319/553). In total, only six participants (1% of 553) reported HIV infection from injecting but nearly half (45%, 251/553) of the injectors reported injecting-related HCV infection. HCV infection is reported considerably less frequently among the Macedonian participants, although it is not known if this is related to lack of knowledge about HCV status (see table 6.24)

Table 6.24 Types of problems experienced when injecting

	Bulgaria (207)		Macedonia (121)		Croatia (183)		BiH (42)		Total (553)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Abscesses	74	36	75	62	98	54	30	71	277	50
Vein damage	126	61	93	77	143	78	34	81	396	72
Problems with family/friends	118	57	89	74	114	62	17	41	338	61
Legal problems	89	43	75	62	91	50	23	55	278	50
Overdose	32	16	38	31	78	43	24	57	172	31
Septicaemia	4	2	1	1	4	2	4	10	13	2
HIV infection	0	0	2	2	3	2	1	2	6	1
HCV	101	49	21	17	97	53	32	76	251	45
Other hep	5	2	9	7	28	15	10	24	52	9.4
Fever/dirty Hit	75	36	54	45	103	56	21	50	253	46
Scarring	98	47	54	45	117	64	8	19	277	50
Increased dependence	100	48	81	67	119	65	19	45	319	58
Other	13	6	20	17	10	6	0	0	43	8

6.7 Trying to stop injecting

6.7.1 Attempts to stop injecting

The current injectors were asked if they had ever tried to stop injecting. Over three quarters (78%, 324/416) reported having attempted to stop injecting: Bulgaria 79% (142/180), Macedonia 83% (71/86), Croatia 72% (92/127), BiH 83% (19/23). The average number of attempts reported was four in Bulgaria, Croatia, and BiH, and three in Macedonia.

6.7.2 Time between first injection and first attempt to stop injecting

Both current and ex-injectors were asked how long it was after starting to inject that they first tried to stop. In BiH the median period was 180 days followed by 365 days in Bulgaria and 410 days in Macedonia. Notably, time to first attempt to stop injecting in Croatia was over twice as long as elsewhere, 730 days. In Bulgaria, Macedonia, and BiH the median

longest period someone had stopped injecting prior to the interview was 180 days, with 365 days being typical in Croatia. Given the distinct difference in the data from Croatia for these two issues and the time to injecting heroin, further investigation should be undertaken to confirm if these results are representative for injectors in that country.

6.7.3 Reasons for stopping injecting
The participants were asked to indicate what issues or events had prompted them to try to stop injecting. The most frequently indicated reason was pressure from family (33%, 180/544), with 16% (87/554) reporting pressure from a partner as influential. The next most common items were entering treatment and giving up the drugs injected (both items 22%, 123/554) indicating that most attempts to stop injecting occur because of attempts to stop using drugs. As has been found elsewhere, collapsed veins (Darke et al, 1994) were a common reason (19%, 104/554) for attempting to stop injecting. In aggregate 33% (181/554) injectors reported attempting to stop because of a physical harm experienced i.e. overdose, collapsed veins, physical harm, BBV infection, other infection.

Table 6.25 reasons for trying to stop injecting

	Bulgaria (207)		Macedonia (121)		Croatia (184)		BiH (42)		Total (554)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Pressure from partner	53	26	16	13.2	15	8.2	3	7	87	16
Pressure from friends	29	14	17	14	8	4	7	17	61	11
Pressure from family	59	29	57	47	56	30	8	19	180	33
Physical harm	21	10	23	19	42	23	10	24	96	17
Collapsed veins	11	5	19	16	58	32	16	38	104	19
Overdose	6	3	6	5	16	9	8	19	36	7
Fear of OD	7	3	9	7	18	10	11	26	45	8
HIV infection	5	2	1	1	1	.5	1	2	8	1
HCV infection	20	10	11	9	18	10	10	24	59	11
Other Hep infection	1	.5	1	1	6	3	4	10	12	2
Fear of BBV infections	20	10	9	7	16	9	3	7	48	9
Had other infections	6	3	1	1	2	1	1	2	10	2
Fear other infections	22	11	22	18	12	7	4	10	60	11
Entering treatment	47	23	24	20	50	27	2	5	123	22
Income increase so could smoke/chase	7	3	5	4	6	3	1	2	19	3
Heroin good enough chase/sniff	8	4	0	0	5	3	1	2	14	3
Gave up drugs injected	45	22	51	42	26	14	1	2	123	22
Injecting drugs became more expensive	13	6	0	0	3	2	1	2	17	3
Other	34	16	14	12	25	14	0	0	73	13

Few people reported trying to stop because of the quality or cost of drugs injected. Overall, very few people indicated that they tried to stop because of something that might happen in the future e.g. fear of overdose or BBV infection. Also considering the proportion of people reporting HCV infection, few reported attempting to stop injecting because of their HCV status.

6.8 Contact with treatment services
6.8.1 Previous contact with treatment services
In total two thirds (66%, 366/554) of the injectors reported a previous contact with an outreach worker. Approximately three quarters of the injectors from Bulgaria (77%, 159/207) and BiH (74%, 31/42) reported engaging with an outreach worker, followed by

two thirds of Macedonian injectors (64%, 77/121) and just over half of the Croatian injectors (54%, 99/184). As would be hoped, using a needle exchange (66%, 365/554) was common in most countries. Nearly half (45%, 250/554) of the injectors had attended a drug service drop in, and just over half the injectors (53%, 296/554) had participated in an outpatient methadone program.

Table 6.26 Lifetime contact with different treatment modalities

	Bulgaria (207)		Macedonia (121)		Croatia (184)		BiH (42)		Total (554)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Talked with outreach worker	159	77	77	64	99	54	31	74	366	66
Attended drug service drop in	119	58	76	63	37	20	18	43	250	45
Used needle exchange	152	73	92	76	121	66	0	0	365	66
Out-Patient Methadone program	87	42	48	40	147	80	14	33	296	53
Residential hospital	73	35	61	50	62	33	19	45	215	39
Therapeutic community	20	10	6	5	60	33	5	12	91	16
Other	18	9	8	7	13	7	0	0	39	7

There were some notable between-country differences for treatment contacts. Whereas 80% (147/184) of the Croatian injectors reported being having been in a MMT program, less than half the injector participants from the other three countries had done so. Over two thirds of injectors in Bulgaria (73%, 152/207), Macedonia (76%, 92/121) and Croatia (66%, 121/184) reported having used a needle exchange, but no BiH participants reported doing so, thus reflecting the lack of NEX services in that county.

6.8.2 Methadone programs
In total only 32% (174/545) of the injector participants were currently in a MMT program, ranging from only 7% (15/205) in Bulgaria to 62% (111/180) in Croatia. Conversely the highest median daily methadone dose was reported in Bulgaria (90mg) and the lowest in Croatia (60mg) (see tables 6.27 and 6.28).

Table 6.27 Injectors in a methadone program

	Bulgaria (205)		Macedonia (121)		Croatia (180)		BiH (39)		Total (545)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Yes	15	7	37	31	111	62	11	28	174	32
No	190	93	82	69	69	38	28	72	369	68

Table 6.28 Daily dosage of methadone (MGs)

	Bulgaria (15)		Macedonia (35)		Croatia (62)		BiH (11)	
Median dose	90		77		60		70	
Range	30	200	3	120	.5	125	30	110

6.8.3 Injecting prescribed methadone
Overall just over two fifths of the Croatian (42%, 38/90) injectors on a methadone program for whom the measure was recorded reported injecting their methadone. Data on the number of participants from the other countries doing so was too limited to make any reporting feasible.

7. Non-injecting heroin users

7.1 Introduction
While the primary focus of the survey was on the transition to injecting, a small sub-sample of non-injectors was also recruited to inform interventions with the aim of reducing the take-up of heroin use. Because of the small number of non-injector participants this data will only be presented at the country level for the key variables.

7.2 Lifetime and recent drug use
All 42 participants had lifetime use of heroin and 36 (86%) had used that drug in the previous 30 days. Also, almost half the non-injectors had lifetime use of methadone (18, 43%) and one third had used methadone in the previous 30 days (12, 29%). As was the case with the injector participants, benzodiazepine use (lifetime 21, 50% & recent 12, 29%) was common, as was amphetamine use (lifetime 28, 67% & current 11, 26%).

7.1 Lifetime and recent drug use

	Amphetamine		Cocaine powder		Crack cocaine		Heroin		Methadone		MDMA		Benzodiazepine		Other	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Lifetime use	28	67	17	41	1	2	42	100	18	43	17	41	21	50	16	38
Previous 30 days	11	26	2	5	0	0	36	86	12	29	9	21	12	29	6	14

7.3 Heroin use by non-injectors

7.3.1 Age of first heroin use

The median age of first heroin use among non-injectors was 18.5 years: Bulgaria (18.5 years), Macedonia (18 years), Croatia (18 years), and BiH (19.5 years).

7.3.2 First route of heroin use

Nearly two thirds of the non-injectors first used heroin by sniffing/snorting (64%, 27/42), with the remaining participants, including all six Macedonians, taking heroin first by smoking/chasing (36%, 15/42).

7.3.3 Reasons for starting to use heroin

By far the reason most frequently cited by the non-injectors overall and each country individually was curiosity about the effects. Modeling effect items 'taking heroin looked enjoyable' and 'sounded OK when people talked about it' were selected by 11 (26%) participants and 10 (24%) participants respectively. Notably just under a fifth of the participants (17%, 7/42) indicated that taking it for the first time was because they saw it as helping them to deal with their problems. The same proportion reported first use of heroin occurring because, at least in part, they were offered some heroin for free.

Table 7.2 Reasons for starting to use heroin

	Bulgaria (14)		Macedonia (6)		Croatia (14)		BiH (8)		Total (42)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Curiosity about effects	11	79	6	100	12	86	5	63	34	81
Taking heroin looked enjoyable	2	15	1	17	4	29	5	63	11	26
Sounded OK when others talked about it	2	14	1	17	3	21	4	50	10	24
People I looked up to were taking opiates	3	21	0	0	1	7	0	0	4	10
Partner injecting	0	0	0	0	0	0	0	0	0	0
Wanted to be the same as friends or partner	2	14	0	0	1	7	2	25	5	12
Pressured by friends	2	14	1	17	0	0	0	0	3	7
Pressured by partner	0	0	0	0	0	0	0	0	0	0
Was drunk/high	0	0	0	0	1	7	3	38	4	10
To come down from another drug	0	0	0	0	3	21	1	13	4	10
Help me deal with problems	4	29	1	17	1	7	1	13	7	17
Offered for free	1	7	2	33	3	21	1	13	7	17
Other	0	0	0	0	2	14	0	0	2	5

7.3.4 Duration and current heroin use

On average the participants had been using heroin for 4.9 years (ranging from 1 to 14 years) and had taken heroin on 14.6 days (0-30 days) in the previous month. No data was collected on the frequency or consistency of heroin use since first use of heroin.

7.3.5 Type and quality of heroin last month

Most participants in Bulgaria (11, 84%), Macedonia (4, 80%), and Croatia (10, 77%) reported taking brown heroin most frequently; in BiH five (62%) of the eight participants used heroin rocks most frequently.

In all four countries (39 cases) the quality of the heroin obtained in the past month was mostly rated as either 'OK' or 'Good' (82%, 32/39) with six participants (16%) rating their heroin in the last month as poor or worse (see table 7.3).

Table 7.3 Quality of heroin in last month

Injecting Status	Bulgaria (13)		Macedonia (4)		Croatia (14)		BiH (8)		Total (39)	
	n	%	n	%	n	%	n	%	n	%
Very good	0	0	0	0	1	7	0	0	1	3
Good	1	8	2	50	8	57	1	13	12	31
OK	8	62	2	50	3	21	7	88	20	51
Poor	1	8	0	0	2	14	0	0	3	8
Very poor	3	23	0	0	0	0	0	0	3	8

7.3.6 Using heroin in front of non-user
Less than a third (32%, 13/41) of the non-injectors thought they had used heroin in front of someone who had never used heroin, and then only 'sometimes' or 'rarely.'

7.4 Non-injectors and injecting
7.4.1 Being present when some one injecting
Contrary to the reports from injectors (see 6.3.5) a quarter of the non-injectors reported often being present when someone was injecting (27%, 11/41) in the last month, and a another quarter (27%, 11/41) were sometimes present when someone was injecting. Only three participants (7%, 41) reported they had never been present when someone was injecting over the same period (see table 7.4).

Table 7.4 Present when someone injecting last month

	Bulgaria (14)		Macedonia (6)		Croatia (14)		BiH (7)		Total (41)	
	n	%	n	%	n	%	n	%	n	%
Often	6	43	3	50	1	7	1	14	11	27
Sometimes	3	21	1	17	4	29	3	43	11	27
Occasionally	1	7	1	17	5	36	2	29	9	22
Rarely	4	29	1	17	2	14	1	14	8	20
Never	0	0	0	0	2	14	1	14	3	7

There are a number of possible explanations for the apparent difference between the reports from injectors and non-injectors, including: 1) injectors are intentionally minimizing how often they inject in front of non-injectors to present themselves in a good light, and 2) injectors are simply not aware of how often they do inject in front of non-injectors. It is likely that the second interpretation is certainly valid in some cases, indicating the value of delivering BTC intervention to raise awareness among injectors.

7.4.2 Likelihood of injecting in the future
It is less than encouraging that only two fifths of the non-injectors (40%, 17/42) reported that they definitely would not inject in the future but a further 13 participants (31% of 42)

did indicate they thought it 'unlikely'. One Croatian participant thought he or she would certainly, or almost certainly, inject in the future.

Table 7.5 Likelihood of injecting in the future

	Bulgaria (14)		Macedonia (6)		Croatia (14)		BiH (8)		Total (42)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Certain/almost certain	0	0	0	0	1	7	0	0	1	2
Likely	3	21	0	0	0	0	0	0	3	7
Not sure	0	0	1	17	3	21	4	50	8	19
Unlikely	4	29	3	50	4	29	2	25	13	31
Definitely won't	7	50	2	33	6	43	2	25	17	40

7.4.3 Aspects of injecting that appeal to non-injectors
When asked what appealed to them about injecting, almost half (48%, 20/42) of the participants indicated that nothing appealed to them about injecting. However, of the same 42 respondents, 12 (29%) thought that injecting would be cheaper, and for six participants (14%), experiencing the rush from injecting was appealing. Two participants (5%) indicated that injecting was attractive because it was less harmful.

Table 7.6 things that appeal about injecting

	Bulgaria (14)		Macedonia (6)		Croatia (14)		BiH (8)		Total (42)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Cleaner	1	7	0	0	0	0	1	13	2	5
Cheaper	2	14	1	17	4	29	5	63	12	29
Less harmful	0	0	1	17	0	0	1	13	2	5
More pure	0	0	1	17	0	0	0	0	1	2
Partner injecting	0	0	0	0	0	0	0	0	0	0
The rush	3	21	0	0	3	21	0	0	6	14
Nothing appeals	7	50	3	50	9	64	1	13	20	48
Other	2	14	1	17	1	7	0	0	4	10

7.4.4 Things that deter non-injectors from injecting
Overall, the responses given by participants when asked about what deters them from injecting suggest a relatively poor level of awareness about the risks associated with injecting. The most commonly selected item was 'do not like needles' (57%, 24/42), followed by higher risk of addiction (55%, 23/42), risk of overdose (50%, 21/42), higher risk of infection (48%, 20/42) and damage to skin/veins (36%, 15/42). Eight participants (19% of 42) cited other people's opinion of them if they did inject as something that would deter them.

Table 7.7 Things that deter non-injectors from injecting

	Bulgaria (14)		Macedonia (6)		Croatia (14)		BiH (8)		Total (42)	
	n	%	n	%	n	%	n	%	n	%
Risk of overdose	7	50	3	50	6	43	5	63	21	50
Higher risk of infection	8	57	0	0	8	57	4	50	20	48
Higher risk of addiction	11	79	3	50	5	36	4	50	23	55
Damage to skin/veins	5	36	3	50	5	36	2	25	15	36
Other people's opinion of me	2	14	1	17	3	21	2	25	8	19
Don't like needles	3	21	4	67	10	71	7	88	24	57
Other	0	0	0	0	2	14	0	0	2	5

8. Discussion

8.1 Introduction

This report has detailed the results of PSI's RATA survey of injecting and non-injecting heroin users in Bulgaria, Macedonia, Croatia, and BiH. Participants were questioned on their historical use of drugs and experience with route transitions to provide insight into drug patterns and prevalence in the region. In this section we discuss the implications of our findings in determining the most appropriate intervention strategies and methods of harm reduction. Route Transition Interventions will be analyzed and contrasted against the drug-use environment in SEE as presented by RATA data to determine the feasibility and suitability of these interventions in the four countries.

8.2 Methadone and Benzodiazepine Use

Methadone use is common in Macedonia and Croatia, with 66% of participants overall reporting prior use, and 68% of current injectors having reported injecting the drug. The high level of injecting methadone is of particular concern given that the majority of methadone preparations are not made for parenteral use. A substantial minority (42%) of the Croatian injectors currently in MMT programs reported injecting their legally prescribed methadone supply. More stringent control over methadone dispensing and its manner of consumption (e.g. more strictly controlled observed consumption) seems likely to be beneficial in reducing injecting of the drug.

Benzodiapine use was commonly reported by both lifetime and current users, with reported current use at 41% and 29% by injectors and non-injectors respectively. Of the injectors who reported current use of benzodiapines, 11% consumed the drug recently by injection. It is not possible to discern from the survey data what proportion of the benzodiazepine use reported involved prescribed drugs. Apart from any concerns about the risk of physical harm associated with regularly injecting benzodiazepines (Ross et al., 1997), the potential for dependency and the contributory role benzodiazepines play in overdose (Darke et al.;

1997) suggest that effective interventions that aim to reduce the use of benzodiazepines and increase prescribing of alternative drugs should be promoted.

8.3 Harms
The injectors recruited for the survey reported substantial levels of harm resulting from injecting, including vein damage (72%), abscesses (53%), HCV infection (45%), problems interacting socially with family and friends (61%), and increased dependency on the drug (58%).

Previously conducted research identified high rates of overdose among drug users in SEE (Wong, 2002). This finding was confirmed by the PSI survey with approximately one third of the injector participants having reported overdosing in the past year. This statistic clearly highlights the need for initiatives to reduce the frequency with which overdoses occur in all four countries.

Particular types of harm that occur as a direct result of injecting such, as increased dependency, overdose, and social difficulties, cannot be comprehensively addressed through the provision of injecting equipment and MMT programs. This deficiency emphasizes the importance of investigating alternative approaches, such as RTIs, as means for reducing the prevalence of injecting and its associated harms.

8.4 Treatment contacts
Contact with some type of treatment service among the injectors was high, although this was to be expected given the method of sample recruitment.

NEX Services
Most injectors (66%-76%) in Bulgaria, Macedonia and Croatia reported being in contact with a NEX service. However, 15% or more of the current injectors from those countries reported passing on or receiving used needles/syringes in the previous 28 days. More positively, while 10% and 24% of injectors in Macedonia and Croatia, respectively, reported using a used needle/syringe for their first injection, *no* injectors in those countries who had been injecting less than three years reported this risky behavior, thus suggesting an improving situation.

Caution should be taken in generalizing from the BiH sample due to the small number of participants. However, the grave situation in BiH, where no NEX services currently exist, highlights the need for such programs in that country. Just under one fifth of BiH injectors reported 'very often' passing on or receiving used injecting equipment in the last month compared to less than 5% of injectors in the other three countries. Also, 76% of BIH injector participants reported injection-related HCV infection; this statistic was considerably higher than that reported by participants in the other countries.

The numbers regarding needle/syringe sharing in SEE as portrayed by the RATA survey highlight the importance of expanding NEX services across the entire region, particularly in BiH. Without increased provisions for this necessary programming, the potential for an epidemic of HIV infection may well be realized (Godinho et al., 2004).

MMT Programs

Across all four countries, only 32% of injectors considered themselves currently enrolled in a MMT program. Participation in MMT programs has been found to be beneficial in reducing many harms resulting from dependency and injecting heroin use, including risky sharing behavior (Gossop et al., 2000). Considerable variation existed across the four countries for this measure; three fifths of current injectors in Croatia were in a MMT program, one-third of injectors in Macedonia and BiH, and less than one tenth of Bulgarian injectors were in a MMT program. Lifetime contact with an MMT program among all injectors was broadly similar for Bulgaria, Macedonia, and BiH, ranging between 30% and 40%. It should be noted that some variation is to be expected, given that Macedonia (and Croatia) have the largest MMT programs of all the countries in this study; Bulgaria has MMT only in certain cities and there is no MMT program in BiH.

However, it is unclear whether this finding was an anomaly resulting from the sampling method.

8.5 Interventions with non-heroin users

The RATA survey was designed to collect data on the transition into heroin use as well as the transition into injecting due to perceptions in the region that heroin users are most likely to move on to injecting rapidly, and that interventions targeting the transition to heroin might be more efficacious in reducing harm.

When asked what prompted them to start using heroin, nearly one-quarter of non-injectors selected 'heroin use sounded good when others talked about it' (24%) and 'heroin use looked enjoyable' (26%). Both findings suggest there may be some value in investigating the viability of an intervention to raise awareness among heroin users of the modeling effects of taking heroin in front of non-heroin users in the same way as the issue of modeling injecting is raised with injectors in the 'BTC' intervention (Hunt et al., 1998). For this type of intervention to be viable, a general reluctance toward encouraging others to use heroin would have to be present among existing heroin users. Whether such a value position does exist would need to be confirmed through further research.

Potential heroin users are even more difficult to identify than potential injectors. Consequently, a media information campaign targeting non-heroin users may be a viable method for intervening with this population. A media campaign founded on social marketing principles that conveys the message that heroin use would continue and intensify beyond initial experimentation, resulting in a number of severe consequences, may resonate with this demographic group. Further research is required to ascertain message types and delivery mechanisms that are most effective with non-heroin users in each country[1].

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[1] Caution must be applied when selecting how messages are conveyed on this issue, particularly if media materials form part of the delivery strategy. In the UK the *Heroin Screws You Up* campaign used pictures of pale, emaciated figures. It was argued by some commentators that rather than deterring potential heroin users the campaign was seen as attractive by such people since the models displayed 'heroin chic'.

8.6 Interventions with non-injecting heroin users

The results of the survey suggest that a substantial proportion of heroin users in the target countries recognize the possibility that they might inject in the future, with 59% of non-injectors indicating that they might inject in the future. However, it should be noted that half of these participants did report they thought it unlikely to happen.

While on average the non-injectors in the PSI sample had been using heroin for 4.9 years, the data collected from injector participants suggests that there is a more limited time lapse between the first use of heroin and first injection of heroin among those drug users who do go on to inject. The amount of time varied from country to country but in most cases the period for transition to injecting from first use of heroin was less than one year. Furthermore, 22% of injectors reported that their first use of heroin and first injection of the drug were simultaneous. RATA survey findings on this issue correspond to previous research in the region where the average time between first-time drug use and injecting was six months to one year (Wong, 2002).

Importantly, the results of the survey reveal the need for locally-based research. Considerable variation for the time between first use of heroin and injecting heroin was found at the local level within Bulgaria (Borgas 180 days, Sofia 365 days, Plovdiv, 180 days) and Croatia (Rjika 150 days, Zagreb 639 days, Split 180 days). Based on this evidence, it seems that an RTI targeting non-injecting heroin users would be easier to implement in some areas than others because of the greater window of opportunity in places such as Zagreb and Sofia, but may have more impact in areas where transition to injecting happens more quickly.

Even though the survey targeted heroin users, 8% of injectors had taken another drug in their first injection, and the limited data available suggests that the transition to injecting is even more rapid when other drugs are involved. It is possible that in coming years, the range of drugs regularly injected in the region will increase. When developing injecting RTIs, initiation into injecting drugs other than heroin should be considered.

One RTI designed to reduce the likelihood of injecting among heroin users which involved delivering a psycho-educational intervention to heroin sniffers was shown to be effective (Des Jarlais et al. 1992). However, considerable problems were experienced in recruiting the heroin sniffers to the trial as most did not think they would begin injecting. This evidence, combined with the survey findings, suggests that preparatory work for developing an RTI aiming to prevent heroin users from making the transition to injecting should include further investigation into screening procedures that might identify non-injectors at risk of progressing to injecting and strategies by which they can be recruited for intervention work.

When considering issues that may be covered in an RTI with non-injectors, survey results suggest that focusing on the following four negative consequences of injecting would be most beneficial: 1. Needle use and damage to skin, 2. Increased risk of dependency, 3. Overdose, and 4. Infection. Additionally, with 65% of injectors citing curiosity as a reason why they injected the first time and 14% of non-injectors indicating 'experiencing the rush'

as attractive, the perspective that it is safe to try heroin 'just once' would have to be challenged. Similarly, with 29% of non-injectors considering injecting attractive because of its economic benefit, (i.e. it is less expensive than other forms of consumption) it is critical to convey the message that any economic benefits incurred at the beginning of injection are likely to be short-lived.

8.7 Interventions that promote sniffing and chasing as routes of ingestion
Among the various kinds of RTIs that have been developed are those designed to promote sniffing/snorting or smoking/chasing to lessen the likelihood that someone will start injecting or lessen the frequency with which people already injecting continue to do so (Hunt et al., 1999). The viability of this type of RTI is dependent upon a number of factors, including how acceptable smoking/chasing and sniffing/snorting are within a population and whether taking heroin by these routes is commonly perceived as viable.

In general both sniffing/snorting and smoking/chasing were found to be common methods for taking drugs in all four countries, e.g. 78% of the injector sample reported first use of heroin by one of these two routes of ingestion. Brown heroin, the most versatile type of heroin, was available in all countries, especially in Bulgaria and Croatia. In the Macedonia and BiH other types of heroin (e.g. white heroin), which are not good for smoking or chasing, were more commonly reported.

However, the results of the survey suggest that factors other than the type of heroin available are pertinent, since there was a clear bias for smoking/chasing heroin in Bulgaria and Macedonia and sniffing/snorting in Croatia and BiH. The survey findings are instructive, indicating promotion of which of these two non-parenteral ingestion routes would be more acceptable in each country.

Overall, participant reports about the quality of heroin in general and how good it is when smoked/chased or sniffed/snorted suggests RTIs promoting these behaviors would be viable with most injectors; 59% and 60% of the current injectors respectively reported the heroin they used in the last month as being 'OK or better' for sniffing/snorting and smoking/chasing. However, there were distinctive differences in the perceived quality of heroin overall among the four countries and among the various city/districts in Bulgaria and Croatia. However, in all the target areas the proportion of participants reporting the quality of heroin as 'OK or better' was sufficient to justify further investigation into delivering RTIs which promote sniffing/snorting or smoking/chasing.

In fact, only 7% of the injector participants who rated sniffing/snorting as a poor method for heroin consumption specifically cited heroin quality as a factor, as compared to 27% of those participants who rated smoking/chasing as a poor way to take heroin. By far, inefficiency and ineffectiveness were the most pertinent factors for those injector participants who considered smoking/chasing and sniffing/snorting heroin as a poor way to consume the drug.

It was unexpected to find that a substantial minority of those participants who rated smoking/chasing (14%) or sniffing/snorting (18%) as a poor way to take heroin did so

because of some type of health harm (e.g. 'harm to nasal passages or lungs' or 'vomiting'). These responses coincide with other results, such as 5% of non-injecting participants seeing injecting as 'cleaner.' Further investigation is needed to ascertain to what degree these reports are based on fact, perhaps due to adulterants in the heroin consumed, and to what degree these reports are based on myth or misunderstanding which could be addressed in a RTI with at-risk heroin users.

To inform the timing of intervention delivery, any assessment of RTI viability should take into account 'naturally' occurring attempts to stop injecting. There were considerable differences between countries regarding the time between first injection to first attempt to stop injecting, ranging from 180 days in Bosnia to 730 days in Croatia.

The reasons indicated by the injectors for attempting to stop injecting were more instructive. Generally, the most frequently reported reasons were likely to be associated with giving up drugs (e.g. pressure from family, entering treatment, etc), as opposed to just stopping injecting. However, 17% and 19% of participants respectively reported physical harm and collapsed veins as reasons for attempting to stop injecting. Also, half or more of the injector participants in each country reported experiencing trouble finding a vein sometimes or more frequently. These findings, and the results of previous research (Dolan et al., 2004), suggest that targeting injectors with RTIs promoting sniffing/snorting or smoking/chasing when they begin to experience problems finding a vein may be effective.

8.8 The Break the Cycle (BTC) intervention

One of the primary aims behind the RiskNet program of training and research was to disseminate an understanding of the BTC intervention, which aims to reduce the likelihood that a current injector would initiate people into injecting or encourage people to inject by modeling injecting behavior (Hunt et al., 1998). The BTC intervention is premised on four factors: 1) most people ask someone else to inject them the first time; 2) most injectors are reluctant to initiate someone into injecting; 3) a substantial proportion of people become attracted to injecting through talking to injectors and seeing injecting; and 4) some injectors give in to initiation requests when they would prefer not to.

The results from the survey confirm that most injectors (86%) were in fact initiated by someone else, and 59% of the injectors who had been asked to do so had initiated someone else (in most cases one or two people). This result is similar to findings from previous research in other countries (Stenbacka et al. (1990); Crofts et al., 1996), Stillwell et al., 1999). As elsewhere, the person who gave the participant their first injection in the four countries was a friend (69%), acquaintance (15%), or a partner (10%). When considering how to deliver the BTC intervention, special consideration needs to be given to how to work with an injector whose partner is a non-injector, particularly when they live together.

Perhaps the most crucial factor for BTC viability is whether a reluctance to initiate others into injecting is commonly present in the target population. Overall, the evidence suggests that inhibiting factors exist in each target country. Among those injector participants who had been asked to initiate someone, nearly all (88%) reported refusing to do so at some point. The reasons indicated for not doing so concentrated on the person becoming hooked,

developing problems in general, overdosing, and the person being too young. Also, between 29% and 71% of the participants from each county indicated that they would definitely not initiate someone in the future.

However, very few people (5% or less in each country) indicated the reason for refusing to initiate someone was that they would simply never do so. It may be that this response reflects recognition of the potential difficulty of refusing some requests (e.g. offered heroin for doing so) or that in fact people's reluctance to initiate someone is bounded by person-specific criteria. Further investigation of this issue would be likely to increase the effectiveness of the BTC in the target countries.

The visual or verbal modeling of a feared behavior can desensitise someone to the risks and enhance a sense of self-efficacy around being able to undertake the behavior safely. A key objective of BTC is to lessen the likelihood that such modeling will occur. In Bulgaria, Macedonia, and Croatia approximately four fifths of all current injectors reported never injecting with non-injectors present, with half the same Bosnian participants reporting the same. However, the reports from non-injectors recruited to the survey about being present when someone is injecting suggest the injectors may be intentionally or unintentionally underreporting the frequency of this event.

Further, in response to the question about reasons why a participant started to inject, in the aggregate 44% of injector participants selected the items 'injecting looked enjoyable' or '[injecting] sounded OK when others talked about it'. This proportion is considerably lower than occurred in evaluation of the BTC intervention in England where 61% of the sample reported modeling behavior as influential in their decision to inject. It seems that while influential in a substantial number of cases, relative to the UK at least, modeling of injecting behavior may not be such an important factor in the four target countries. Further confirmation should be sought about the proportion of injectors who do inject in front of non-injectors. It should be noted that the BTC intervention was developed in part because injectors are not commonly aware of their behavior around non-injectors.

9. Conclusions

Congruent with previous research findings the results of the survey confirm that there is considerable need for harm reduction initiatives among injecting drug users in Bulgaria, Macedonia, Croatia and BiH. Furthermore, the information collected about treatment contacts by the four populations reveals considerable scope for improvement in the region. However, it is recognized that there are considerable economic and other types of obstacles that will restrict the growth of services such as NEX and MMT programs in the target countries. These circumstances, combined with the knowledge that injecting related harm is likely to continue to occur even when such services are readily available, indicate that the viability and effectiveness of RTIs should be fully explored.

For the most part the features surrounding the transition into injecting reported by the participants were very similar to what has been discovered elsewhere. None of the findings of the survey negate the possibility of delivering any type of RTI, including the BTC

intervention, in each of the four counties. However, the findings do emphasize the need to be selective when choosing which type of RTI to focus upon.

The information reported from the survey provides a good basis from which to begin to select and design RTIs tailored to local circumstances. However, the production of effective interventions will require further research and development on the part of individual agencies. Key areas for further research might include:

1. Investigating further the possibility of developing strategies to reduce the number of people starting to use heroin.
2. Evaluating the viability of identifying and engaging at-risk non-injecting heroin users.
3. Gaining greater clarity about the prevalence and impact of current injectors modeling injecting to non-injecting heroin users and the salient factors inhibiting injectors from initiating others.

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